NUCOR® SKYLINE

CASE STUDY

South Wilmington Grade Separation Project

Los Angeles, CA

HISTORY

The Port of Los Angeles is one of America's premier ports. The port has a strong commitment to developing innovative, strategic, and sustainable operations that benefit Southern California's economy and quality of life. As North America's leading seaport, in terms of container volume and cargo value, the Port of Los Angeles facilitated $290 billion in trade during 2014. Port operations and commerce support more than 148,000 jobs (about one in 12) in the City of Los Angeles and 531,000 jobs (or one in 16) in the five-county Southern California region.

As the leading gateway for trade between the U.S. and Asia, the port and supply chain partners provide outstanding cargo conveyance through modernized and "big-ship-ready" marine terminal facilities. The port offers the largest workforce of skilled longshore labor in the U.S.; warehouse and trans-loading centers to meet the needs of every shipper; the nation's largest and newest drayage fleet; and rail connections that offer frequency and speed-to-market access to major freight hubs across the U.S.

"This project increases public safety, improves the flow of goods, and saves time for the people and businesses of our community"

– Gene Seroka, Executive Director, Port of Los Angeles.

PROBLEM

In 2015, the increase of traffic around the port was bringing roadways to a grinding halt, causing delays to an area that is heavily trafficked by pedestrians, cars, trucks, and trains.

The South Wilmington Grade project was a jointly funded venture by the California State Trade Improvement, Port of Los Angeles, and the Los Angeles Metropolitan Transportation Authority. The project consisted of a new, elevated-grade, 4-lane separated roadway structure. The span connects Harry Bridges Boulevard to Pier A and Fries Avenue, and includes a new entrance to the Trans Pacific Container Service Company. The bridge separates existing at-grade vehicular and train traffic and provides access to port terminals, a community center, several maintenance facilities, the National Polytechnic College of Engineering and Oceaneering, and many local businesses.

There were many aspects of this project that were challenging, such as keeping the rail station fully operational during construction, having full access to the port facilities, allowing utilities to continue operating, staging and constructability of the area, and interfacing with the nearby park construction project.

"This project increases public safety, improves the flow of goods, and saves time for the people and businesses of our community," said Gene Seroka, Executive Director of the Port of Los Angeles. "Rail and gate productivity are key to the supply chain, and this project directly impacts both functions."

SOLUTION

A Value Analysis (VA) was commissioned by the Port of Los Angeles. The VA Study identified and evaluated alternative project solutions and provided recommendations to decision makers, including a cost benefit analysis. After

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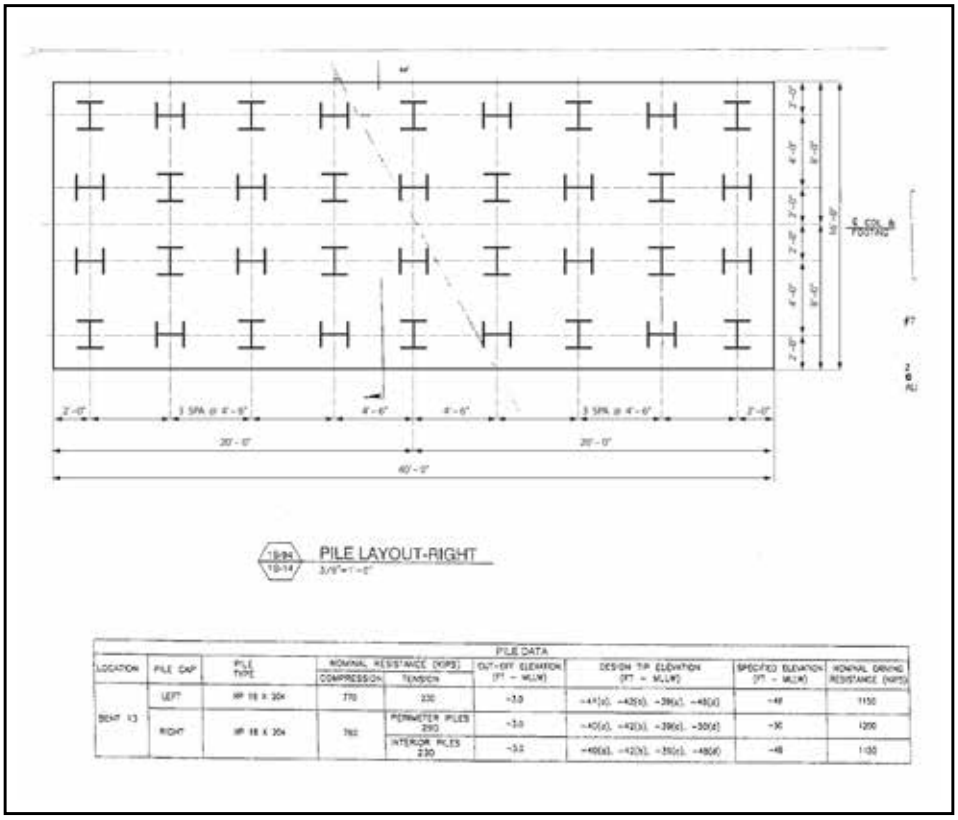

PROJECT PARTNERS

Owner
Port of Los Angeles and California Department of Transportation

General Contractor
MCM Construction Inc. – Bloomington, CA

Pile Driver
Foundation Pile – Fontana, CA

Engineers
AECOM – Los Angeles, CA

PacRim Engineering – Santa Ana, CA

Athalye Consulting Engineering Services, Inc. – Lake Forest, CA

PRODUCT

H-piles: 3,264 tons of HP 18x204

PROJECT TIME FRAME

January 2013 to April 2015

much consideration, it was decided that a bridge should be built from the Pier A Street entry of the port, over the railroad crossings at Fries Avenue and Avalon Boulevard, and end at Lagoon Avenue.

The elevated structure consists of 4,100 linear feet of precast, cast-in-place box girders on 7’ OD concrete columns built on footings. An additional 32,000 linear feet of Nucor Skyline’s new HP 18x204 were used to replace the original design of 24” octagonal concrete piles. After a pile test indicator program was run, the conclusion was a very dense sand layer pushed the driving stresses past permissible levels, and the 24” concrete octagonal piles were unable to reach design tip.

Using an IHC SC 75 hydraulic hammer, test HP 14x117s were driven to the design elevation. AECOM performed the redesign of the foundation and orientated the H-piles to meet the lateral loading requirements. The H-piles were more expensive than the concrete piles, but the concrete piles could not meet the requirements of the project and the installation of the H-piles, was much faster. The redesign delay was negated with increased productivity in pile driving, and the project was brought back on schedule.

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For technical questions and engineering support, please contact us via our technical hotline at: **1-866-875-9546** or email us at: **engineering@nucorskyline.com**.